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AUTHOR Hobish, Toby T.
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ABSTRACT

The hypotheses for the study were that: (1) there is a significant overall relationship between three variables (independence, level of masculinity, and level of socialization) in combination and two independent variables (sex and degree status) that is different for successful degree candidates (SDC) and all-but-dissertation (ABD) students: (2) SDCs would score higher than ABDs on achievement via independence: and (3) SDCs would score higher on achievement via level of masculinity, regardless of sex. It was also expected that males would score higher than females on these scales due to sex-role socialization processes. The first and third hypotheses were borne out. The second was largely borne out, except that females scored higher than males, especially in the SDC group. The assumption about sex-role socialization was also supported, although it did not distinguish between female SDCs and ABDs. It is concluded that the investigation of such task-specific personality variables is a viable frame of inquiry for explaining differential levels of achievement in doctoral study. While the personality variables functioned well in distinguishing between SDCs and ABDs regardless of sex and between male and female SDCs, they did not operate effectively in distinguishing male and female ABDs: it is felt that other personality variables may be the reason. It is theorized that the dissertation process may be a more complicated psychological experience for females than males. (MSE)

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PSYCHOLOGICAL PREDICTORS OF ATTRITION IN DOCTORAL STUDY: THE ABD PHENOMENON

Toby T. Hobish

The body of literature concerned with attrition in doctoral programs reflects two consistent patterns: (1) The drop-out rate is inordinately high when compared with medical and law schools (Lunneborg & Lunneborg, 1973, Folger, Astin & Bayer, 1970) and (2) women are less likely than men to complete their studies, despite the fact that they enter doctoral programs with stronger academic credentials than do men (Roby, 1973, Cross, 1974 Feldman, 1974).

It has been conservatively estimated and generally accepted that despite continued efforts to improve selection procedures, between 45 and 50% of those selected drop out before completing their degree (Folger et al., 1970, Heiss, 1970; Solmon, 1973). Further, though women have comprised approximately 30% of those selected to study for the doctorate, (Friedman, 1974, Cross, 1974), they represent only 14% of the doctorates awarded in the U.S. (National Research Council, 1976).

To date, the sex variable has been established as the most persistent and strongest predictor of success or failure in doctoral study (Mooney, 1968, Solmon, 1976). Attrition-related literature, however, has neglected to systematically isolate and examine sex-related factors, other than demographic, that might help explain and perhaps stem women's higher attrition. A major reason for this neglect appears to reside in research methodology common to much previous research. First, until recently, most related studies have addressed the population at large, which by virtue of its male

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predominance, have considered females peripheally or not at all (Renetsky, 1966, Wright, 1964). Second, attrition has been treated as a dichotomous variable, i.e. successful versus unsuccessful, regardless of what stage of doctoral study a person reached before dropping out. Such a simplistic dichotomization has ignored the fact that doctoral training represents a developmental process, consisting of a series of critical pressure points, each of which is critically related to attrition (Heiss, 1970, Sells, 1973).

One such pressure point is the dissertation stage, which represents, perhaps, the main stumbling block to completion for both males and females. According to scant available data, attrition at this most advanced stage of training is estimated to run between 25 and 50% (Berelson, 1960, Heiss, 1970, Sells, 1973). In fact, this drop-out experience is so prevalent in almost all universities that it has come to be known in academic jargon as the ABD (All But Dissertation) phenomenon. The literature strongly suggests that women may be absent from the ranks of doctorates awarded because they drop out disproportionately when compared to men at this critical stage (Tucker, Gottlieb & Pease, 1964, Holmstrom & Holmstrom, 1974, Rees, 1974).

Why the impact of this terminal requirement eventuates in so many competent canditates being placed in the academic grab-bag labelled "failure" and why the requirement differentially affects males and females was the interest of this study. It focused on the dissertation process as a psychological experience most critically related to the contextual research tasks embedded in the dissertation requirement.

These have come to embody achievement expectations that historically and culturally have been viewed as more male than female appropriate (Bernard, 1964, Heiss, 1970, Rossi, 1972, Morlock, 1973, Vaughter, 1976). The study,therefore, investigated the relationship of specific sex-related achievement-based personality predispositions to the differential achievement of males and females at dissertation stage of doctoral study.

The framework of the study was derived from a theory of achievement motivation (Maehr, 1974) that posited that successful completion of the dissertation would be a function, simultaneously, of the research-rooted tasks historically associated with the requirement and achievement-based personality characteristics elicted by these tasks. Selection of the personality characteristics called upon by the dissertation was guided by theoretical formulations in sex-role socialization literature (Bardwick, 1971, Lipman-Blumen, 1972, Bardwick & Douvan, 1972, Hoffman, 1972, Blck, Van Der Lippe & Block, 1973, Alper, 1974). These characteristics were achievement via independence, level of masculinity and level of socialization. Essentially, the study predicted that a specific configuration of these variables would be differentially related to SDC (Successful Degree Candidates) and ABD (All But Dissertation) status for males and females. More specifically it was hypothesized that: (1) There would be a significant overall relationship between the three above mentioned dependent variables in combination and the two independent variables, sex and degree status, (2) SDCs would score higher than ABDs on achievement via independence and (3) level of masculinity, regardless of sex. Though not hypothesized, it was expected that malesWould score higher than females

on these scales due to sex-role socialization processes. The fourth hypotheses was that there would be an interaction between sex and degree status in regard to level of socialization such that (a) male SDCs would score significantly higher than male ABDs and (b) female SDCs would score significantly lower than female ABDs.

METHOD

Subjects

The original pool of research participants consisted of 337 male and female Ph.D. degree candidates recruited from two large urban private schools of education, who had matriculated for the degree within the school years of 1963 through 1966. Two hundred and seventy two responses were received, reflecting a response rate of 80%. The final sample consisted of 239 respondents, whose a priori group membership assignments were as follows: 77 male and 79 female SDCs, 44 male and 39 female ABDs. The mean age of the total group was 43.25 years. There were no significant differences between SDCs and ABDs in regard to marital status and family size.

Measures

Achievement via independence (Ai) and level of socialization (So) were measured by two scales of the California Psychological Inventory (CPI; Gough, 1975). The use of the two sub-scales for purposes of this study was supported by the structure and purpose of the original inventory (Megargee, 1972, Personal Communication, Gough, 1974). Level of masculinity was measured by the original masculinity scale of the Bem Sex Role Inventory (BSRI; Bem, 1974) and subsequently by the new two-factor masculinity scales, dominant/assertiveness and independence.

Procedure

Data were collected by means of a mailed questionnaire. This included a Personal Survey Questionnaire, the entire BSRI and three sub-scales of the CPI, the Ai, So and Ac (Achievement via conformance) scales.

Data Analysis

Analysis 1

Hypotheses were tested within the framework of 2 x 2 multivariate analyses of variance (MANOVA) and univariate analyses of variance (ANOVA), corrected for unequal Ns, where sex and degree status were the independent variables and achievement via independence, level of masculinity, and level of socialization were the dependent variables. Discriminant function and canonical correlation analyses were subsequently generated for purposes of further interpretation of the data.

Analysis 2

Data were re-analyzed and hypotheses were retested using the new two factor-based masculinity scores of the BSRI, dominant/assertiveness and independence (Richardson, Reference Note).

RESULTS

Group means and standard deviations for all measures are reported in Table 1.

Analysis 1

As can be seen from the MANOVA analyses presented in Table 2, the three selected personality variables in combination effectively differentiated among all criterion groups, as was hypothesized (sex,

F = 10.41, p = .00001; degree status, F = 22.36, p = .00001; interaction, F = 6.51 p = .0003). By referring to the specific Wilk's lambda for each effect (sex = .89; degree status = .78; interaction = .92), it can be noted however that differences between SDCs and ABDs contributed the largest proportion of variance accounted for in this sample.

In regard to hypothesis 2, inspection of Table 3 indicated that a significant difference between SDCs and ABDs was yielded for the Ai variable (F = 18.11, p = .00003) in the direction predicted. Additionally, Ai scores generated a significant difference for sex (F = 9.53, p = .002). However, contrary to expectation, females scored higher than males, accounted for primarily by the female SDC's highest mean (see Table 1). When Scheffé comparisons were computed to explicate the significance of the interaction effect (F = 4.04, p = .05)., these indicated that the Ai scale was significantly related to degree status for females but not for males.

In summary, while the Ai variable significantly differentiated between SDCs and ABDs and between males and females, it functioned most critically in differentiating SDC females from all other groups.

In regard to hypothesis 3, Table 3 reveals that a significant difference between SDCs and ABDs on the masculinity scale was found (F = 37.93, p = .0001). As predicted, SDCs score significantly higher than ABDs (see Table 1). Further, males scored significantly higher than females, as was expected (F = 7.16, p = .008).

Relative to hypothesis 4, Table 3 indicates, that as predicted, a significant interaction effect was yielded in regard to the socialization variable (F = 16.72, p = .0001). Scheffé comparisons revealed that, as hypothesized, male SDCs scored significantly higher than male

ABDs on this scale. However, contrary to the prediction for females, this variable did not distinquish between female SDCs and ABDs. Further findings regarding the So variable indicate a significant sex difference ($F = 11.34$, $p = .0009$), accounted for primarily by the high mean of the male SDC group (see Table 1). In fact, the socialization scale functioned most critically in distinquishing this group from all other groups as did the Achievement via Independence scale for women. Degree status differences were non-significant; this effect was eliminated by the strength of the interaction.

Analysis 2

It can be noted from inspection of Tables 2 and 3 that the data generated by the new two-factor based masculinity scores supported the original predictions virtually intact. Using four dependent variables, achievement via independence, level of socialization along with dominant/assertiveness and independence factors instead of the original total masculinity score, a significant relationship was again found to exist for these variables in regard to all criterion groups, (sex, $F = 5.09$, $p = .0006$; degree status, $F = 11.18$, $p = .00001$; interaction, $F = 5.51$, $p = .0003$).

However, since the second analysis was pre-eminently related to testing the hypothesis concerning the effect of the new two factor masculinity variables in predicting to degree status, the factor-based data require more detailed examination and, therefore, will be discusses further on. It should be noted here, however, that whereas the original single factor masculinity scores yielded a significant difference for degree status, as indicated in Table 4, this difference held up only for the dominant/assertiveness factor, ($F = 22.69$, $p = .00001$) but not for the independence factor. SDCs scored significantly higher than ABDs on the dominant/assertiveness scale (see Table 1). The independence factor, on the other hand, was not at all related to distinquishing significant differences between and among any criterion groups.

Supplementary Analyses

Although the femininity scale of the BSRI and the achievement via conformance scale of the CPI were not administered to test the original hypotheses, nonetheless, they were subjected to statistical analyses because of their inherent relationship to the theoretical rationale that formed the framework of the study.

The assumption in regard to the femininity scale was that due to the sex-typing of research as a male-related achievement task, those personality characteristics stereotypically associated with the female sex role in our society would not be a critically related variable to completion of the dissertation. In regard to the Achievement via Conformance (Ac) variable, it had been explicitly assumed that having successfully completed the more structured aspect of doctoral study, e.g. all course work, candidacy exams, etc., all participants would manifest a high level of Ac. It was expected, therefore, that mean scores on this scale for all criterion groups would not differ significantly and would not be critically related to the dissertation process. Subsequently, the new femininity factor, caring, was analyzed for the same purpose.

Inspection of Table 4 indicates that the data generated by these variables confirmed the theoretical assumption that, for the purpose of distinquishing SDCs from ABDs, the Ac, femininity, and caring scales were non-critical variables. It must be noted, however, that whereas females scored significantly higher than males both on the original femininity scale ($F = 31.22$, $p = .00001$) and on the caring scale ($F = 5.13$, $p = .02$) (see Table 1), the strength of the sex difference was somewhat modified by the use of the new caring factor scores.

DISCUSSION

This study demonstrated that the investigation of task-specific

personality variables is a viable frame of inquiry for the purpose of explaining differential levels of achievement in doctoral study. Though a significant proportion of variance was explained by the selected variables, a much larger proportion remained unexplained. This indicates that other variables need to be explored in order to more fully understand and deal with the problem of attrition in doctoral training programs. While the personality variables functioned very effectively in distinguishing SDCs from ABDs regardless of sex and between male and female SDCs, singly or in combination, they operated not at all effectively in differentiating between male and female ABDs. Why they were ineffective in this regard might be explained, in part, by the fact that while the variables were selected as facilitators to completion, specific personality variables that might have been functioning as impediments to completion were ignored.

This study also demonstrated that achievement motivation cannot be assumed to be a generalized motive that functions across achievement tasks. Rather it provides empirical support for the viewing of achievement as outcome behavior simultaneously affected by the contextual tasks of the achievement situation and task-related personality characteristics that function as facilitators and/or impediments to their fulfillment. These findings are consonant with those of Maehr (1974) and Domino (1968), among others.

The data yielded by the individual scales in regard to SDCs strongly support the theoretical position taken in this investigation -- namely, that the dissertation process may be a more complicated psychological experience for females than it is males.

First, the data yielded by the achievement via independence variable suggest that a more stringent criterion for independence was operating for females in this sample than for males. If, as shown, a unique modality of achievement was required for females, then the implication is that a double standard of performance might be operating in academia in regard to independence at dissertation stage.

Second, the data in regard to the socialization scale lend further support for such a formulation. That this variable distinquished degree status differences for males but not for females may be explained by the suggestion that while the scale was constructed to measure a generalized capacity for role conformity, it may, in fact, be tapping aspects of role-taking ability that are stereotypic (Megargee, 1972). For males, this reflects a common single factor, related to a wide range of social behaviors that are consonant with high achievement (Block, 1973). In this sample, it may have reflected male SDCs greater capacity to "play the game" according to clearly defined conventional rules established by academia in regard to the enactment of the role of research scholar. The impact of socialization for females with respect to high achievement in male arenas reflects the possibility that a single factor may not be operating for them and that a two-factor hypothesis may need to be considered (Rosen, 1977). As conceptionalized by Block (1973), and extrapolated to this study, while lower socialization scores for females may have accounted initially for their enrollment in doctoral studies, that it did not differentiate between female SDCs and ABDs may be accounted for by the discontinuous nature of socialization processes for women in regard to high achievement. High achievement for

them vis à vis the Ph.D. degree may be associated with two separate dimensions of socialization, the first, reflecting a generalized capacity for conventionality and the second, a capacity for unconventionality in regard to sex-role norms. The relationship between level of socialization and high achievement, therefore, appears to be a more complex one for females than it is for males, especially in regard to completion of the dissertation. In order to play the academic game, females, unlike males, appear to be required to relinquish certain aspects of their socialization that function as constraints and impediments to fulfilling the role expectations for the Ph.D. recipient.

This is further demonstrated by the findings related to specific aspects of sex-role definition stereotypically associated with masculinity in our culture. As originally analyzed, a higher endorsement of masculinity characteristics was strongly related to SDC status, regardless of sex. However, as subsequently analyzed using the new two-factor masculinity scores, it was the dominant/assertiveness factor but not the independence factor that proved to be the significant factor in account for differences between SDCs and ABDs. These data support the centrality of the dominant/assertiveness factor achievement at dissertation stage. Clearly, for doctoral candidates, regardless of sex, to bring the dissertation experience to fruition, they must manifest a willingness and a capacity to push themselves and their ideas ahead and demand recognition for both. Specifically, according to Bernard (1964), with respect to research, a candidate needs to be aggressive enough to create new knowledge and be able to fight for its acceptance. In fact, according to Bernard (1964), "Even the terminology ... 'defense of thesis' ... bears the stamp of the design" (p. 141). Clearly, this is a style of

achievement that is antithetical to stereotypic femininity in our in our society.

The findings in regard to the independence factor, on the other hand, are less clear. Though it might have been expected that the factor would have been a strong predictor of degree status, as was the achievement via independence measure, this was not the case. This may be explained by the fact that the factor may be highly related to general maturity and that this sample, regardless of degree status or sex, was manifesting a level of over-all personality development that reflected such maturity. In fact, this sample was, chronologically, a mature group of individuals who had supported themselves through part-time doctoral study essentially through income earned while attending graduate school. Perhaps, survival in a doctoral program, under these circumstances and up to dissertation stage, required of them those qualities of self-reliance and self-sufficiency subsumed by the independence factor. However, level of maturity alone was not a strong enough predictor of success in this final stage of doctoral study.

Another possible explanation for this outcome may be related to the fact that the independence factor scale and the achievement via independence measure were uncorrelated for this sample. Re-examination of the Ai scale and factor analytic studies of the CPI suggest a possible explanation for this outcome. According to these (Megargee, 1972), the Ai scale taps aspects of achievement related not only to an independent style of working but also to style of independent thought, reflected in a tolerance for ambiguity, a rejection of authoritarian attitudes, and a willingness to reject conventional answers and think for oneself. In terms of this study, then, perhaps, in order to conduct independent research and thereby

complete their dissertations, females needed a critically higher capacity for independent thought to survive the dissertation process than did their male counterparts as was reported by Helson's (1967) findings in a sample of creative mathematicians. This suggests that for women achievement via independence may not be a single factor personality characteristic, consistent across all achievement areas. Additionally, it provides further support for the viewing of achievement within a personality-situation framework in order to unravel the perplexing problem of the differential achievement of males and females.

A final explanation for the findings in respect to the independence factor may be that it was too weak a scale to measure independence, as conceptualized in this study. Since it consisted of only three items of the original BSRI masculinity scale, the validity of the findings in regard to this sample remain questionable.

The study suggests that more stringent expectations vis à vis achievement at dissertation stages might have been operating for females than for males in this sample. If, as shown, women have had to develop a unique modality of achievement in order to "play the academic game", then as suggested by Rossi (1965) and Bernard (1976) they have had to do so without the benefit of a tradition or an established support system.

The findings of this study direct attention to the need to re-examine the goals of doctoral study and how these goals may best be achieved. Among these may be the need to re-order priorities in regard to research such that it can reflect cooperative rather than competitive efforts. Perhaps in so doing research competency and not a single piece

of research, as an end in itself, can become the focus of the dissertation process. While as presently constituted, the process appears to have "more in common with the initiation rites of a male fraternity than with the systematic feed-back systems to develop skills in research" (Vaughter, 1976), cooperative research might, in fact, result in greater professional involvement and future scholarly productivity.

There may also be the need to build into the doctoral training process a very early orientation and involvement with research endeavors so that the dissertation experience becomes less discontinuous with other stages of doctoral study. This might indeed affect success at dissertation stage as was reported by Renetsky (1966) and has been constantly demonstrated as facilitative to completion in Ph.D. programs on the hard sciences (Craeger, 1971, Berelson, 1960). Third, this study tangentially suggests that survival in doctoral programs may be related to professional socialization processes, as reflected in interpersonal relationships, that have previously been shown to have an impact on attrition, especially for women (Friedman, 1974, Holmstrom, 1974, Heiss, 1970, Kagan, 1966, Mechanic, 1962). Such interpersonal variables as student-student, student-faculty, and student-advisor relationships need to be addressed for purposes of explicating problems of attrition. Finally, this study demonstrated the need to build into the doctoral process a system of counseling, separate from advisement, for the purpose of developing intervention strategies before attrition sets in. It might be noted here, that although every precaution was taken to maintain participants' anonymity in this study, almost two thirds of the respondents identified themselves by expressions of further interest in the study and by emotional statements mirroring their personal

experiences as doctoral studens. Implicitly and explicitly they were communicating their strong need to be heard.

In conclusion, it must be recognized that the present study represented a beginning and leaves much room for further exploration. If we can more precisely conceptualize and measure significant aspects of the graduate school experience, we would be better able to account for the differences between those who succeed and those who do not, since the nature of this difference is of enormous importance. Perhaps a more sensistive awareness of these differences would afford opportunities for creasting an academic atmosphere in which the personality characteristics of the unsuccessful student need not be a handicap to success.

Table 1

Means and Standard Deviations for Male and Female SDCs and ABDs on Achievement via Independence, Level of Masculinity, Level of Socialization, Dominant/Assertiveness, Independence, Achievement via Conformance, Level of Femininity, and Caring Scales

Variable		SDC		ABD	
		M N=77	F N=79	M N=44	F N=39
Ai	Mean	64.00	68.71	61.45	61.64
	S.D.	7.75	6.78	9.43	9.45
Masc	Mean	5.76	5.56	5.27	4.96
	S.D.	.56	.54	.76	.83
So	Mean	51.57	43.20	44.32	47.21
	S.D.	7.75	10.06	10.89	13.09
Dom/Ass	Mean	5.29	5.34	4.91	4.76
	S.D.	.81	.72	.82	.95
Ind	Mean	6.10	6.19	5.70	5.91
	S.D.	.93	.68	.83	.87
Ac	Mean	54.47	56.25	56.47	55.10
	S.D.	7.25	7.89	7.25	7.85
Fem	Mean	4.97	5.31	4.95	5.26
	S.D.	.47	.50	.48	.44
Car	Mean	5.51	5.71	5.41	5.61
	S.D.	.78	.68	.65	.58

Table 2

Summary of the Multivariate Analyses of Variance for Sex, Degree Status and Sex by Degree status Groups on the Dependent Variable Scores, in Combination

Source of Variance	Analysis 1[a]			Analysis 2[b]		
	Wilk's Lambda	F	P	Wilk's Lambda	F	P
Sex	.89	10.41	.00001	.92	5.09	.0006
Degree Status	.78	22.36	.00001	.84	11.18	.00001
Sex x Degree Status	.92	6.51	.00003	.91	5.51	.0003

[a] d.f., 3/233

[b] d.f., 4/230

Table 3

Summary of Univariate Analyses of Variance for Sex, Degree Status, and Sex by Degree Status Groups on Achievement via Independence, Level of Masculinity, Level of Socialization, Dominant/Assertiveness and Independence Scales

Source of Variance	Ai		Masc		So		Dom/Ass		Ind	
	F	P	F	P	F	P	F	P	F	P
Sex										
Analysis 1 [a]	9.53	.002	7.16	.008	11.34	.009				
Analysis 2 [b]	9.09	.003			9.34	.003	.44	N.S.	1.17	N.S.
Degree Status										
Analysis 1 [a]	18.11	.00003	37.93	.00001	1.75	N.S.				
Analysis 2 [b]	17.36	.00004			2.61	N.S.	22.69	.00001	.23	N.S.
Sex x Degree Status	4.04	.05	.41	N.S.	16.72	.001				
Analysis 1 [a]	3.89	.05			16.67	.00006	.89	N.S.	.28	N.S.
Analysis 2 [b]										

[a] df. 1/235

[b] df. 1/233

Table 4

Summary of Univariate Analysis of Variance for Sex, Degree Status, and Sex by Degree Status Groups on Achievement via Conformance, Level of Femininity and Caring Scales

Source of Variance	Ac[a]		Fem[a]		Car[b]	
	F	P	F	P	F	P
Sex	1.07	N.S.	31.22	.00001	5.13	.02
Degree Status	1.54	N.S.	.28	N.S.	.67	N.S.
Sex X Degree Status	.01	N.S.	.04	N.S.	.38	N.S.

[a] df. 1/235

[b] df. 1/233

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